MARKED-UP VERSION OF AMENDMENTS

IN THE CLAIMS:

Claims 20 and 22-26 have been amended as follows (deleted portions are stricken out, added portions are in bold):

20. (Amended) A fusion protein comprising (i) an antigenic protein ~~derived~~ **isolated** from Mycoplasma gallisepticum causing an antibody-antigen reaction with Mycoplasma gallisepticum immune serum or Mycoplasma gallisepticum infected serum and (ii) a signal polypeptide of Herpesvirus outer membrane protein, said signal polypeptide being ligated with said antigenic protein ~~derived~~ **isolated** from Mycoplasma gallisepticum at the N terminus thereof.

21. (Not Amended) A fusion protein according to claim 20, wherein a sequence of said antigenic protein is amino acids 64-456 of SEQ ID NO:2 or amino acids 693-1086 of SEQ ID NO:4.

22. (Amended) A fusion protein according to claim 20, wherein said signal polypeptide is ~~derived~~ **isolated** from a herpes virus showing infection to fowl.

23. (Amended) A fusion protein according to claim 22, wherein said signal polypeptide is ~~derived~~ **isolated** from a Marek's disease virus.

24. (Amended) A fusion protein according to claim 23, wherein said signal polypeptide is gB protein ~~derived~~ **isolated** from a Marek's disease virus.

25. (Amended) A recombinant Avipox virus in which a DNA coding for the fusion protein according to claim 20 has been inserted**, said DNA comprising a first DNA sequence isolated**

from Mycoplasma gallisepticum and coding for an antigenic protein causing an antibody-antigen reaction with Mycoplasma gallisepticum immune serum or Mycoplasma gallisepticum infected serum, and a second DNA sequence isolated from a Marek's disease virus gene coding for outer membrane protein gB.

26. (Amended) A recombinant live vaccine for anti-fowl Mycoplasma gallisepticum infection comprising as an effective ingredient a recombinant Avipox virus in which a DNA coding for the fusion protein according to claim 20 has been inserted, **said DNA comprising a first DNA sequence isolated from Mycoplasma gallisepticum and coding for an antigenic protein causing an antibody-antigen reaction with Mycoplasma gallisepticum immune serum or Mycoplasma gallisepticum infected serum, and a second DNA sequence isolated from a Marek's disease virus gene coding for outer membrane protein gB,** wherein the fusion protein is capable, upon administration into a host cell, of immunizing that cell against subsequent infection with Mycoplasma gallisepticum.

REMARKS

By the present amendment, claims 20 and 22-26 have been amended.

Claims 20-26 are pending in the present application. Claims 20-24 are directed to a fusion protein, claim 25 is directed to a recombinant Avipox virus, and claim 26 is directed to a recombinant live vaccine.

As a preliminary, Applicants and Applicants' representative thank the Examiner for the personal interview which was held on January 22, 2002.

In the Office Action, claims 20-26 are rejected under 35 U.S.C. 112, first paragraph, for lack of written description. It is alleged in the Office Action that the written description in the original application is limited to the signal sequences of SEQ ID NO:2 and 4 because a person of ordinary skill in the art "cannot envision the detailed structure of a signal polypeptide of Herpesvirus outer membrane," so that the scope of claim 20 is not commensurate with the original description. Also, it is alleged that the definition of the antigenic protein in claim 20 is too broad.

In addition, with respect to claim 26, it is alleged that Example 6 in the specification is limited to 40K-S and 40K-C vaccines, so that undue experimentation would be required to determine the effectiveness of the generically defined vaccines in claim 26 because "the vaccine art is highly unpredictable."

Reconsideration and withdrawal of the rejection is respectfully requested. As explained during the personal interview, it is submitted that a person of ordinary skill in the art can easily envision the detailed structure of a signal polypeptide of Herpesvirus outer membrane. It is

submitted that it was routine technique at the time the application was filed to produce a probe based on sequences disclosed in the present specification and to obtain a similar sequence derived from a Herpesvirus other than Marek's disease virus (MDV).

In particular, the examples of the present specification provide information on gB of MDV, so that a person of ordinary skill in the art can easily find out a signal sequence of gB of herpes simplex virus having high homology. In fact, not only gB, but also gA, gC, gD and the like were known as outer membrane proteins of Herpesvirus prior to the filing of this application. Also, the antigenic gene of Mycoplasma gallispeticum was disclosed in U.S. Patents No. 5,489,430 and No. 5,871,742. A person of ordinary skill in the art would readily understand that the antigenic gene disclosed in these patents could also be used with a reasonable expectation of success.

It is submitted that exemplification of all species within a genus is not required, so that the exemplification of representative species with amino acids 1-63 of SEQ ID NO:2 and with amino acids 1-673 of SEQ ID NO:4, coupled with the teachings and references regarding the signal polypeptide of Herpesvirus outer membrane in the specification, are sufficient to enable the claimed invention. Therefore, claims 20-26 are clearly enabled.

In view of the above, it is submitted that the lack of enablement rejection should be withdrawn.

Next, in the Office Action, claims 20-26 are rejected under 35 U.S.C. 112, second paragraph, as indefinite. It is alleged that the term "derived" in claim 20 is vague and that the definition of "DNA coding for the fusion protein" is also indefinite.

Reconsideration and withdrawal of the rejection is respectfully requested. In the claims, the term "derived" has been replaced by "isolated" as suggested by the Examiner. Further, claim 26 has been amended to recite that the DNA comprises a first sequence isolated from Mg and a second sequence isolated from gB, and that these two sequences code respectively for the antigenic protein and for signal polypeptide recited in claim 20. Therefore, it is submitted that the indefiniteness rejection should be withdrawn. It is noted that corresponding changes have been made in claim 25 also.

Next, in the Office Action, claims 20-24 are rejected under 35 U.S.C. 103(a) as obvious over Saito in view of Yoshida, and claims 25-26 are rejected under 35 U.S.C. 103(a) as obvious over Saito in view of Yoshida and further in view of Yangida. It is alleged in the Office Action that a motivation for using the signal sequence of Yoshida would have been to provide "a mere alternative and functionally equivalent polypeptide since only the expected results are taught."

In addition, it is alleged (i) that Sajto teaches antigenicity because the claims do not recite antigenicity in vivo, (ii) that Yoshida does suggest the use of gB gene derived from MDV, and (iii) that the Declaration filed June 27, 2000 "does not teach the specific vaccine discussed in the claims," and thus, "is not commensurate with the claims."

Reconsideration and withdrawal of the rejection is respectfully requested. As explained during the personal interview, the Declaration of June 27, 2000 has been misconstrued in the Office Action. The test results reported in the Declaration of June 27, 2000 are NOT for the purpose of showing that the present invention provides improved results, so that the objection that

the Declaration is not commensurate with the claims does not take into account adequately the contents and purposes of the Declaration.

In fact, the Declaration was submitted to show that Sajto does not provide satisfactory results in vivo. Thus, the Declaration focuses on the disclosure of Sajto, not on the disclosure of the present application, and shows that, if a person of the art had attempted to reproduce in vivo the experiments made in vitro by Saito, that person would have found that the fusion genes comprising DNA sequences coding for the an antigenic gene of Mycoplasma gallisepticum ligated to a signal of NDV, as disclosed in Sajto, may induce neutralizing antibodies in vitro, but does NOT prevent infection in vivo. As a result, there would have been no motivation to use the teachings of Sajto to prepare another fusion protein to use against infection by Mycoplasma gallisepticum. In particular, there would have been no motivation to modify the teaching of Sajto with the other references as cited in the Office Action. Therefore, for this reason alone, the present claims are not obvious over the cited combinations of references.

In view of the above, it is submitted that the rejection should be withdrawn.

In conclusion, the invention as presently claimed is patentable. It is believed that the claims are in allowable condition and a notice to that effect is earnestly requested.

In the event there is, in the Examiner's opinion, any outstanding issue and such issue may be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of the response period. Please charge the fee for such extension and any other fees which may be required to our Deposit Account No. 01-2340.

Respectfully submitted,

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Encl.: Petition for Two-Month Extension of Time